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YOUTH DECISION MAKING AUTONOMY AND TEST PERFORMANCE

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ABSTRACT

This paper investigates the relationship between youth participation in household decision making and test performance in three countries India, Peru, and Vietnam. Using Young Lives Surveys data, the study constructs autonomy indices using factor analysis and regresses test performance on each of these indices. Contrary to the hypothesis that autonomy may be less beneficial in collectivistic cultures, this study does not find a negative relationship between autonomy and test performance among 19-year-olds in all three countries. Youth unilateral decision making in Peru and joint decision making in Vietnam are associated with higher test performance. Parental unilateral decision making is associated with lower performance in both countries. Autonomy is not significantly related to performance in India. Robustness check suggests that participation in household decisions (buying household utilities, buying livestock, land and house) may be less important for the youths than participation in decisions directly relevant to them.

JEL classification: D13, I21, O15
Keywords: adolescent autonomy, household decision making, parent-child relationship, test performance

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1 INTRODUCTION

Youths in different parts of the world enjoy very different levels of autonomy. For example, about 80% of the surveyed 19-year-olds in Peru report that they are free to decide how to spend their money, while the corresponding figure in Vietnam and India is only 15% (Boyden et al., 2016). Previous studies have shown that that Western adolescents expect autonomy at an earlier age or receive more autonomy at the same age than their Asian, African and South American counterparts (Feldman and Rosenthal, 1991). Even within countries, adolescents of different backgrounds have different opportunities to participate in family decision making (Dornbusch et al., 1990; Fuligni et al., 1999).

Becoming an autonomous being is a central task of adolescence. Autonomy can be understood as "*an adolescent's growing ability to think, feel, make decisions and act on his or her own"* (Russel and Bakken, 2002). This ability is demonstrated by *"the feeling of being a separate person rather than an extension of others, an awareness of freedom to make choices in selecting or rejecting outside influences, and assuming responsibility for one's own decisions*" (Murphy et al., 1963). Dornbusch et al., 1990; Rest, 1983) differentiate between emotional psychology (how the adolescent views him/herself and the relationship with parents), behavioural autonomy (the capacity to self-govern and function independently without parents' supervision or in the face of excessive influence e.g. peer pressure), and value autonomy (development of the adolescent's world view, grounded in a set of beliefs and principles). Participation in family decision making is a measure of behavioural autonomy, reflecting the relationship (with parents and peers) aspect. The other aspect of behavioural autonomy, functioning, involves the adolescent's decision-making competence, including the ability to follow through on these decisions with actions (Collins and Steinberg, 2006).

Research has investigated correlates of the level of autonomy granting in households. The literature on gender-specific differences in youth autonomy has yielded largely mixed results. Several papers have documented higher decision making autonomy for boys than for girls (Dornbusch et al., 1990; Dowdy and Kliewer, 1988), others find either the contrary (Bumpus et al., 2001; Wray-Lake et al., 2010), or fail to find any gender differences (Baiocco et al., 2009; Peterson and Bush, 1999; Smetana, 2000). There are also mixed results regarding the relationship between autonomy and birth order. Bumpus et al., 2001) and Small et al. (1988) both find that firstborns are granted more autonomy. Wray-Lake et al. (2010) observe that at the age of 10, second-born children are given more autonomy than first-born children. They follow different trajectories and reach the same level of autonomy at the age of 18. Furthermore, there are interactions between birth-order and the sibling gender. Bumpus et al. (2001) argue that if the firstborn is a daughter and the second-born is a son, the daughter enjoys higher autonomy.

A number of works also investigate the relationship between parental socio-economic background and the level of decision making autonomy they grant their children. Flanagan (1990) finds that mothers with long-term unemployment and less education tend to give their children, especially their daughters, more autonomy. This evidence supports Lareau's (2003) conjecture that parents from lower socio-economic backgrounds value "accomplishment of natural growth" and grant their children more autonomy, while parents of higher backgrounds tend to structure their children social lives and activities and grant them less autonomy. However, other studies find a positive association between parents' education and youth decision making autonomy (Dornbusch et al., 1990; Nucci et al., 1996; Wray-Lake et al., 2010), which lends support to the argument that parents of low socio-economic backgrounds are more likely to rely on imperatives and restrictions to create a safe environment for their children.

Research has established the links between decision making autonomy and youth outcomes. The association between decision-making opportunities and youth mental health has been well documented in the literature (Gutman and Eccles, 2007; Lord et al., 1994). Several studies have investigated the relationship between youth participation in family decision making and academic performance, but the evidence is still sparse. Dornbusch et al. (1990) report negative associations between unilateral decision making by young people (aged between 14 and 18) and both their school effort and performance. Parental unilateral decision making has a very slightly negative impact, while joint decision making is associated with increased effort and higher grades. However, they also report variations in the effects of autonomy across ethnics in the US. Pong et al. (2010) find a positive association between joint decision making in the family and grades point average among youths. Unilateral parental decision making has a negative impact among European-Americans but this impact is not statistically significant among Asian-Americans, which the authors attribute to the small size of this

sample. Smetana et al. (2004) do not find any impact of autonomy and grades in late adolescence, once youth's past performance and background are controlled for.

All of the three above-mentioned studies were conducted in the US. This study extends the line of research by investigating the relationship between youth decision making autonomy and test performance in other countries: Vietnam, India and Peru. The variations in the effect of autonomy across ethnic groups in the US suggest that there can be heterogeneity across countries. For example, Dornbusch et al. (1990) find the negative impact of autonomy is strong among Hispanics but weaker among Asian-Americans and even reversed among Vietnamese-American males. Are similar patterns found in Latin American and Asian countries?

Comparisons across countries are necessary for two reasons. First, youths in different countries participate to differing extents in family decision making, therefore they may benefit differentially from decision making autonomy. Gutman and Eccles (2007) speculate that the effect of autonomy on youth's outcomes depends on the level of autonomy the youth is granted – either too much or too little autonomy is not beneficial. A curvilinear relationship is also found between adolescents' attitudes toward family obligations (current and future support for family, respect for family) and their academic success (Fuligni et al., 1999). Second, there are different cultural and socio-economic dimensions which can affect the relationship between autonomy and youth outcomes. Higher levels of autonomy are often observed in individualistic societies, and lower levels in collectivistic societies (Supple et al. 2009). Several authors argue that parents in collectivistic countries promote obedience to prepare their children for a highly structured society. They argue that parental control is not harmful and may even be beneficial for the youths in these societies while the reverse is true for individualistic societies (see Grusec et al. (1997), for example, for a discussion). While the US is an individualistic country, Vietnam and Peru are collectivistic countries and India is transitional[1]. We can expect lower levels of youth autonomy and more negative effects of autonomy in these countries. Doepke and Zilibotti (2017) propose another point of view. They argue that in countries with low-quality institutions and limited access to tertiary education, parents put more emphasis on obedience and less on independence to help their children achieve the best outcomes. As Vietnam, India and Peru are all in the higher end of spectrum of competition pressure for access to tertiary education (*World Development Indicators*, as represented graphically in Doepke and Zilibotti 2017), we also expect autonomy to be associated with lower achievements in these countries. This research has implications for developing countries, since the cultures of most developing countries in Asia, Africa and South America tend towards being collectivistic (Hofstede, 2001) and these countries offer limited opportunities for higher education.

2 DATA AND METHODS

2.1 Data

This paper uses data from the Young Lives Surveys (Boyden, 2014; Boyden et al., 2016), a longitudinal study of childhood poverty in Ethiopia, India, Peru, and Vietnam[2]. The feature of this dataset is that it collects information about 19-year-olds' participation in household decision making regarding a number of activities. Besides, the survey administers a mini-test to measure mathematics and language comprehension skills in every round. The survey is also informative about the demographic and economic condition of the family.

The survey tracks the lives of about 1000 older children (born in 1994-1995) and 2000 younger children (born in 2001-2002) in each country over a 15-year period. I focus on the older cohort for whom information on household decision making was collected. Those older children were repeatedly surveyed when they reached the age of 8, 12, 15, 19 and 22 in 2002, 2006, 2009, 2013 and 2016 respectively. I use data from the fourth round when the youths reached 19 years old and some supplementary information from the third round when the youths were 15. After discarding missing data points, the final sample has 631, 405 and 654 observations in India, Peru, and Vietnam correspondingly.

[1] India, Peru, and Vietnam score 48, 16, and 20 respectively while the US score 91 in Individualism Index which ranges from 1 to 120 (Hofstede Insights, 2019).

[2] The survey provides data for Ethiopia, but very few Ethiopian youths remain in school by the age of 19 so these data are dropped from the analysis.

2.2 Measures

2.2.1 Decision making: The survey asked the 19-year-olds about their participation in current household decision making on a range of issues. If the household had never made these decisions, the survey asked the youth to think of a hypothetical situation when this decision came up." The youth was then presented with the following decisions: (1) buying large household purchases (e.g. house, land, livestock…) (L.PURCHASES) (2) buying household purchases for daily needs (e.g. grocery, fuel, water…) (S.PURCHASES) (3) joining, leaving or changing school or university (SCHOOL) (4) spending own money earned by working or by selling own possessions (MONEY) (5) visiting parents, relatives or friends outside the community (GO OUTSIDE) (6) joining a group in the community (e.g. local council, cooperative, youth club, sports club…) (GROUP).[3]

The survey asked: "Who had (would have) the final say in this decision?" and offered 9 response categories, namely: (i) the youth only (ii) spouse/partner only (iii) the youth's parents only (iv) other household members (excl. the youth) (v) non-household members (vi) the youth together with spouse/partner (vii) the youth together with his/her parents (viii) the youth together with other household members (ix) the youth together with non-household members

Figure 1 summarizes youth's participation in household decision making. In general, Peruvian youths seem to enjoy more autonomy than Vietnamese and Indian youths. In all four individual decisions (SCHOOL, MONEY, GO OUTSIDE, GROUP), they are most likely to be the sole decision maker. Vietnam and India are featured by the high percentages of parents who act as the sole decision maker in the household. Joint decisions are more popular in India than in Vietnam. Vietnamese youths, on the contrary, are more likely than their Indian peers to make decisions themselves.

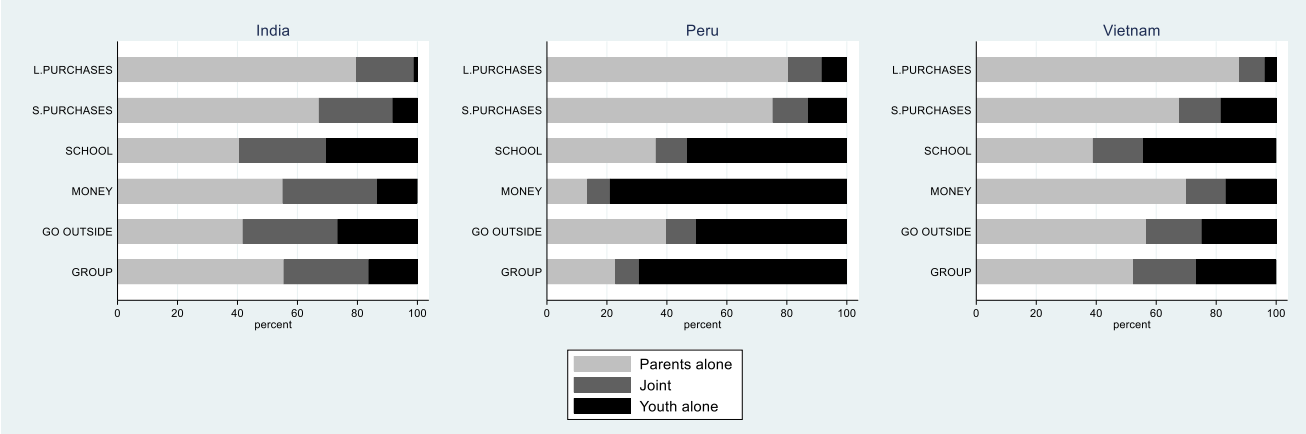

Figure 1: Youth's participation in household decision making

2.2.2 (Current) test performance: In every round, the Young Lives Surveys administers a cognitive test. In round 4, when the youth reached 19 years old, they were asked to answer a set of mathematics and language comprehension questions. The mathematics section lasts 40 minutes and comprises of 28-30 questions, varying across countries. The language comprehension takes 30 minutes and comprises of 24 questions. The number of correct answers in each section is divided by the total number of questions in the section to create a percentage measure. The results of the two sections are then averaged to obtain a single variable.

2.2.3 Past test performance: is measured by the raw number of questions answered correctly in each section of the cognitive test in round 3. This test includes three sections. The PPVT is a picture vocabulary test including 204 items. The cloze test is a verbal test with 24 blanks to fill in. The math test comprises of 30 questions.

[3] For Vietnamese youths, the survey also asked about two additional decisions namely: (7) buying one's own clothes or shoes (CLOTHES) (8) seeking health advice (HEALTHCARE). These decisions are omitted from the analysis for comparability across countries.

2.2.4 Other youth's and household's characteristics: The survey provided rich information on household's socio-economic background, including parental education (averaged across the two parents), household expenditure per capita in the previous wave (data from the third round, converted to PPP dollars), whether the house they are living in is owned-house, housing quality, access to basic services, and consumer durables in the household. In the fourth round, when the youth reached 19 years old, the survey also asks the youths if they had ever lived outside their household for more than one month during the past four years (youth's migration). In the third round, the survey also asks youths how much time they spent on their study on a typical day (hours of study). Table 1 summarizes the variables used for the analysis.

VARIABLES	(1) India	(2) Peru	(3) Vietnam
Youth's characteristics			
Test performance	55.71	64.00	53.55
	(19.39)	(15.74)	(17.50)
PPVT (round 3)	139.4	99.19	171.8
	(36.89)	(16.08)	(23.22)
Cloze (round 3)	10.88	15.40	19.66
	(6.32)	(5.35)	(4.39)
Math (round 3)	10.42	13.91	19.23
	(6.36)	(5.43)	(6.94)
Hours of study (round 3)	9.86	8.23	8.12
	(3.46)	(2.59)	(3.49)
Female	0.42	0.43	0.50
Firstborn	0.33	0.32	0.39
Youth's migration	0.48	0.31	0.52
Household's characteristics			
Parental education	1.63	2.00	2.25
	(0.98)	(0.93)	(0.94)
Expenditure per capita (round 3)	0.10	0.18	0.15
	(0.07)	(0.20)	(0.12)
House ownership	0.85	0.84	0.89
Housing quality	0.71	0.53	0.64
	(0.23)	(0.24)	(0.16)
Access to services	0.73	0.89	0.63
	(0.23)	(0.18)	(0.24)
Consumer durables	0.40	0.52	0.62
	(0.14)	(0.19)	(0.13)
Rural	0.69	0.17	0.77
No. of observations	631	405	654

Standard deviations in parentheses.

Table 1: Summary statistics

2.3 Analytical strategy

The analysis is conducted in three steps. In the first step, I use factor analysis to construct three indices: *Youth Alone* index, *Joint* index, and *Parents Alone* index corresponding with three modes of family decision making to measure the level of autonomy each youth enjoys. In the second step, I regress each of these indices on a range of child and household characteristics to find the correlates of autonomy. The third step is an analysis of the effect of each index on educational achievements using ordinary least squares regression models.

2.3.1 Construction of the indices: From the qualitative variables on household decision making in the Young Lives Survey, three autonomy-related indices – *Youth Alone, Joint* and *Parents Alone* – are constructed for each child in the sample. This involves recoding the categorical answers as numeric and using factor analysis to collapse these variables into a single index. This method has been used in decision making autonomy research in psychology (e.g., Hasebe et al., 2004; Lamborn et al., 1996 ; Smetana et al., 2004). Another method in this line of literature is to ask the youths how much they participate in household decision making in general, which produces a single variable. This latter approach was suggested by Epstein and McPartland (1977) and has been adopted in a number of studies (Fuligni and Eccles, 1993; Gutman and Eccles, 2007; Lord et al., 1994; Yee and Flanagan, 1985). Although simple for data collection and analysis, this approach has the disadvantage of vagueness. For example, Epstein and McPartland (1977) use the following question: "How much do you take part in making family decision about yourself?" (Very much = 1, Much = 1, Some = 0). Since youth participation is very different across decisions, their answers depend on what they consider as family decisions about them, and how they weigh these decisions. Furthermore, asking about decision making in general provides little insight into how each decision is made within household. The availability of detailed information about participation in household decision making in the Young Lives Survey, therefore, enables a more insightful analysis of youth autonomy.

	Recoding schemes		
CASES	Youth Alone	Joint	Parents Alone
The youth is the sole decision maker	1	0	0
The youth makes decisions jointly with other members of the household	0	1	0
The youth does not participate in decision making	0	0	1

Table 2: Recoding schemes

To measure the level of youth participation in household decision making, an *Youth Alone* index is constructed by first recoding the decision making variables as follows: the youth is the sole decision maker = 1, the youth makes the decision jointly with other member(s) of the household = 0, the youth does not participate in decision making = 0. In this recoding scheme, higher scores indicate more youth decision making autonomy. Two other indices *Joint* and *Parents Alone* are constructed in a similar way to measure the extent to which each mode of decision making is used in the household. The *Joint* index is constructed using the following recoding scheme: the youth makes the decision maker jointly with the parents = 1, otherwise = 0. For the *Parents Alone* index, the recoding scheme is: the parents make the decision themselves = 1, otherwise = 0. These recoding schemes are summarized in table 2.

For each recoding scheme, the 6 decision making variables are then aggregated to a single index using factor analysis. Factor analysis is used to identify similar patterns of responses across multiple observed variables (decision making variables) which are caused by their association with an underlying factor (youth autonomy). The leading principal component factor, which explains the largest part of the variance of the variables, is taken as the index of interest. It is, in effect, a weighted average of the decision making variables.

All the indices are standardized so that each index has zero mean and unit standard deviation. Standardization allows easy interpretation: one unit of a standardized index corresponds to one standard deviation of that index or one standard deviation of any (unstandardized) linear transformation of the index.

To facilitate interpretation, the factors are rotated using varimax rotation. The purpose of rotation methods is to simplify the factor structure. Specifically, varimax maximizes the sum of the variances of the squared loadings where loadings are the weights assigned to each variable. This is achieved if, (a) any given variable has a high loading on a single factor but near-zero loadings on the remaining factors and if (b) any given factor is constituted by only a few variables with very high

loadings on this factor while the remaining variables have near-zero loadings on this factor. Rotated factor loadings are reported in Table 3.

VARIABLES	(1) Youth Alone	(2) Joint	(3) Parents Alone
Rotated factor loadings			
L. PURCHASES	0.195	0.324	0.265
S. PURCHASES	0.164	0.384	0.233
SCHOOL	0.369	0.547	0.396
MONEY	0.613	0.602	0.579
GO OUTSIDE	0.572	0.688	0.591
GROUP	0.667	0.685	0.642
Cronbach's alpha	0.713	0.832	0.749

Table 3: Rotated factor loadings and standardized Cronbach's alpha in pooled factor analysis

Table 3 also reports standardized Cronbach's alphas, a measure of internal consistency. The internal consistency, or the reliability, of any given measurement refers to the extent to which it is a consistent measure of a concept (Goforth, 2015). If the items in a test are correlated to each other, the value of alpha is increased. There are different reports about the acceptable values of alpha, ranging from 0.70 to 0.95 (Tavakol and Dennick, 2011). Here the Cronbach's alpha measures the correlation of the individual decision making variables. All the indices constructed have a Cronbach's alpha in the recommended range.

2.2.2 Regression of autonomy indices on child and household characteristics

To understand what contributes to differences in the levels of autonomy the youths in each country are granted, I regress each autonomy index on a range of child and household characteristics. Research suggests that the gender and the birth order of the youth as well as the household's socio-economic background may be related to the youth autonomy. Parenting style or perceptions may also affect their autonomy granting. Furthermore, some authors argue that parents may response to their child's ability (especially decision making competence) by allowing them more freedom (Gutman and Eccles, 2007; Peterson and Bush, 1999). To test this hypothesis, I include in the regressors the youth's past performance when the youth was 12 years old. Finally, I add child's migration within the previous three years. The model for each index $j = Youth\ Alone,\ Joint,\ Parents\ Alone$ is as follows:

$$\begin{aligned}\text{Index}_{ij} = \alpha_{0j} + \alpha_{1j}\text{Past performance}_{ij} + \alpha_{2j}\text{Female}_i + \alpha_{3j}\text{First child}_i + \alpha_{4j}\text{First daughter}_i + \alpha_{5j}\text{Child migration}_i \\ + \alpha_{6j}\text{Parental education}_i + \alpha_{7j}\text{Per capita expenditure}_i + \epsilon_{ij}\end{aligned}$$

2.2.3 Regression of achievements on autonomy indices.

The main model measures the correlation between youths' academic achievements and the extent they participate in family decision making. Besides controlling for the youth's past performance, the model also controls for other factors that can affect achievements such as number of hours of study when the youths were 15 years old, whether the youth is the first child, as well as parental education and economic condition of the household (per capita expenditure, house ownership, housing quality, services available to household, consumer durables ownership).

$$\begin{aligned}&\text{Test performance}_{ij} \\ &\quad = \beta_0 + \beta_{1j}\text{Index}_{ij} + \beta_{2j}\text{Past performance}_i + \beta_{3j}\text{Hours of study}_i + \beta_{4j}\text{First child}_i \\ &\quad + \beta_{5j}\text{Parental education}_i + \text{Economic condition}_i{}'\delta_j + \varepsilon_{ij}\end{aligned}$$

2.2.4. Robustness check

The correlation between achievement and youth autonomy can be sensitive to the way autonomy indices are constructed, specifically, the weights given to each decision in factor analysis. To test for robustness of the results of the main models,

I repeat the analysis for autonomy indices constructed in two other ways. One way is to give all decisions equal weights, in other words, each autonomy index is a simple average of the corresponding recoded decision making variables. To make the parameters comparable across specifications, these averages are also standardized. The other way is to run separate factor analysis for each country, which generates the rotated factor loadings and Cronbach's alphas reported in Table 4.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		India			Peru			Vietnam	
VARIABLES	Youth Alone	Joint	Parents Alone	Youth Alone	Joint	Parents Alone	Youth Alone	Joint	Parents Alone
Rotated factor loadings									
L. PURCHASES	0.098	0.326	0.343	0.828	0.151	0.723	0.258	0.367	0.226
S. PURCHASES	0.051	0.270	0.218	0.825	0.186	0.721	0.446	0.618	0.361
SCHOOL	0.315	0.555	0.450	0.226	0.526	0.264	0.294	0.498	0.357
MONEY	0.313	0.574	0.576	0.068	0.602	0.096	0.608	0.600	0.493
GO OUTSIDE	0.607	0.682	0.667	0.248	0.595	0.292	0.583	0.714	0.585
GROUP	0.552	0.651	0.667	0.135	0.682	0.184	0.596	0.709	0.573
Cronbach's alpha	0.576	0.809	0.773	0.718	0.739	0.727	0.713	0.858	0.754

Table 4: Rotated factor loadings and standardized Cronbach's alpha in separate factor analysis

The separate factor analysis for each country generate different sets of rotated factor loadings. For Vietnam, the loadings do not change substantially. Household decisions (L. PURCHASES) still receive high weights while individual decisions (MONEY, GO OUTSIDE and GROUP) low weights. However, S.PURCHASES and SCHOOL are given medium weights, with S.PURCHASES given a little more weight than SCHOOL. For India, household decisions (L.PURCHASES) receive low to medium weights; individual decisions receive either medium to high weights (SCHOOL, MONEY) or high weights (GO OUTSIDE, GROUP). The situation in Peru is very different. For Joint index, household decisions receive low weights and individual decisions high weights. The reverse is true for *Youth Alone* and *Parents Alone* indices. The Cronbach's alphas for all indices in all countries, except Youth alone index in India, are in the recommended range.

3 RESULTS AND DISCUSSION

3.1 Correlates of decision making autonomy

Youth's ability, gender, migration and parental education are all related to the level of autonomy granted to youths (table 5). There is some evidence that youths with higher ability participate more in household decision making. Peruvian adolescents who perform better in the PPVT test at the age of 15 are more likely to be the sole decision maker and less likely to be totally dependent on parental decision making at the age of 19. In India and Vietnam, the relationship between autonomy and past performance is less clear. Indian youths with higher maths score are more likely to participate in joint decision making while Vietnamese youths with higher cloze score are less likely to do so. Past performance is not significantly related to other modes of decision making in both countries.

In all three countries, compared to boys, girls are less likely to be the sole decision maker and more likely to have no voice in the final decision. Gender differences are greatest in India. Indian girls on average are 0.43 points (standard deviations) lower on the *Youth Alone* index and 0.42 point higher on the *Parents Alone* index. Peruvian girls are 0.22 points (standard deviations) lower on the *Youth Alone* index and 0.22 points higher on the *Parents Alone* index. The corresponding figures for Vietnam are 0.16 and 0.15.

Having been away from home for at least one month within the past four years is positively related to *Youth Alone* and *Joint* indices and negatively related to *Parents Alone* index in India and Vietnam. Indian youths who moved out are 0.14 point higher in *Joint* index. On average, Vietnamese youths who migrated out earn 0.14 points on *Youth Alone* and 0.37 points on *Joint.* They also score 0.42 points lower on *Parents Alone* in comparison with those who have always stayed

home. The connection between migration and autonomy in India and Vietnam can be interpreted in several ways. It may be because youths who live away from home have to make decisions themselves in the absence of their family members and this tendency persists even though most of the youths in the survey had returned home by the time of the fourth round of the survey. It can also be because youths who are more autonomous are more likely to have migrated.

There is evidence that more educated parents are less likely to give their children autonomy in India. Higher levels of parental education are associated with lower chance of youth unilateral decision making and higher chance of parental unilateral decision making. Parental education and household expenditure per capita, which is a proxy for household permanent income, have no significant correlation with any of the indices.

The correlates of decision making autonomy are different across countries, despite the universal fact that females are more controlled. In India, more educated parents are less likely to engage their children in family decision making. In Peru, youths with higher ability are more likely to make decisions. In Vietnam, youth's migration is an important factor.

3.2 Relationship between autonomy and educational achievements

Table 6 shows the regression results on the relationship between decision making autonomy and test performance, controlling for past performance and various youth and family characteristics. For Peruvian youths, youth unilateral decision making is positively related and parents alone decision making negatively related to test performance. Specifically, an increase of one standard deviation in the *Youth Alone* index is associated with a gain of 1.16 percentage points in the tests and an increase of one standard deviation in *Parents Alone* index is associated with a decrease of 1.54 percentage point. In Vietnam, one standard deviation difference in the *Joint* index is associated with a 2.66 higher percentage point difference in test performance, and a one standard deviation difference in the *Parents Alone* index is associated with a negative difference of 2.41 percentage points in test scores. Similar patterns of positive effect of youth's engagement in decision making are found in India but the parameters are not statistically significant.

These results indicate that in all three countries – Vietnam, India and Peru – autonomy is not negatively related to test performance. Peruvian and Vietnamese youths who participate more in family decision making perform better in cognitive tests. However, the results also do not lend support to Gutman and Eccles' (2007) hypothesis of an "optimal" level of autonomy. Studying the relationship between decision making autonomy and mental health in youths, they find opposite results for the two ethnic groups in the US. While decision making opportunities are related to less depression among African Americans, the reverse is true for European Americans. Noticing that the European Americans on average enjoy a higher level of autonomy than the African Americans, the authors hypothesize that autonomy and adolescents' outcomes have a curvilinear relation. As can be seen from Fig. 2, Peruvian youths seem to have more freedom than their Vietnamese and Indian peers to make decisions themselves. Gutman and Eccles' (2007) hypothesis implies that Peruvian youths would benefit less from autonomy than their Vietnamese and Indian counterparts. However, the results of the analysis indicate that Peruvian youths also benefit from decision making opportunities. They even benefit from being the sole decision maker, which is not found to have significant correlation with achievements in India and Vietnam.

The results also do not give support to the speculation that youths benefit more from parental control in collectivistic countries and countries undergoing substantial social and economic changes, countries with low-quality institutions and limited access to higher education (Doepke and Zilibotti, 2017; SUPPLE et al., 2009). On the contrary, they seem to benefit from decision making opportunities. However, one should be cautious in comparing these findings with those from previous studies such as Dornbusch et al. (1990) and Pong et al. (2010) since these studies examine a pool of youths of different ages (from 14 to 18 years old). As children grow older, they become more competent decision makers and need more autonomy accordingly (Gutman and Eccles, 2007; Lord, Eccles, McCarthy, 1994; Qin et al., 2009; Smetana et al., 2004; Wray-Lake et al., 2010). Parental control over certain activities may be necessary and appropriate at an earlier stage might become intrusive and harmful later (Smetana et al., 2005).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		India			Peru			Vietnam	
VARIABLES	Youth Alone	Joint	Parents Alone	Youth Alone	Joint	Parents Alone	Youth Alone	Joint	Parents Alone
PPVT	0.001	0.001	-0.001	0.008**	0.003	-0.010***	-0.001	-0.000	0.001
	(0.001)	(0.001)	(0.001)	(0.004)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)
Cloze	0.004	-0.009	0.004	0.007	-0.009	-0.000	0.013	-0.015*	0.000
	(0.005)	(0.007)	(0.006)	(0.011)	(0.007)	(0.010)	(0.008)	(0.009)	(0.008)
Math	-0.008	0.018**	-0.007	-0.008	0.001	0.008	-0.006	0.005	0.003
	(0.005)	(0.008)	(0.006)	(0.009)	(0.006)	(0.008)	(0.005)	(0.006)	(0.005)
Female	-0.426***	-0.012	0.423***	-0.222**	-0.005	0.222***	-0.155**	0.003	0.139*
	(0.058)	(0.084)	(0.071)	(0.088)	(0.058)	(0.077)	(0.068)	(0.076)	(0.072)
Firstborn	0.048	0.025	-0.060	0.006	-0.053	0.038	-0.044	0.138	-0.073
	(0.065)	(0.093)	(0.079)	(0.100)	(0.066)	(0.087)	(0.077)	(0.086)	(0.081)
First daughter	0.099	-0.170	0.037	-0.045	-0.056	0.081	0.049	-0.209*	0.126
	(0.097)	(0.140)	(0.119)	(0.158)	(0.104)	(0.139)	(0.108)	(0.120)	(0.114)
Youth's migration	0.079	0.074	-0.138**	0.048	0.034	-0.078	0.140**	0.370***	-0.421***
	(0.050)	(0.073)	(0.062)	(0.088)	(0.058)	(0.077)	(0.070)	(0.077)	(0.074)
Parental education	-0.052*	-0.020	0.068*	-0.023	-0.020	0.041	0.025	-0.004	-0.019
	(0.029)	(0.042)	(0.035)	(0.046)	(0.030)	(0.040)	(0.034)	(0.038)	(0.036)
Expenditure per capita	0.172	-0.503	0.198	-0.167	-0.053	0.179	0.051	0.077	-0.094
	(0.391)	(0.565)	(0.480)	(0.191)	(0.126)	(0.167)	(0.249)	(0.277)	(0.263)
Observations	631	631	631	405	405	405	654	654	654
R-squared	0.197	0.285	0.270	0.123	0.133	0.164	0.061	0.171	0.129

*** p<0.01, ** p<0.05, * p<0.1. Standard errors in parentheses. All estimations control for rurality, cluster and child ethnic fixed effects.

Table 5: Correlates of decision making autonomy

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		India			Peru			Vietnam	
Parental education	0.327	0.348	0.371	-0.553	-0.534	-0.509	1.791***	1.810***	1.707**
	(0.601)	(0.599)	(0.600)	(0.620)	(0.623)	(0.619)	(0.684)	(0.675)	(0.678)
Expenditure	-3.629	-3.078	-3.309	0.393	0.317	0.452	-3.719	-3.380	-3.501
	(7.896)	(7.891)	(7.897)	(2.549)	(2.558)	(2.545)	(4.988)	(4.930)	(4.944)
House ownership	1.231	1.294	1.216	-1.971	-1.702	-1.833	-2.497	-2.356	-2.138
	(1.414)	(1.411)	(1.412)	(1.306)	(1.316)	(1.300)	(1.733)	(1.710)	(1.718)
Housing quality	-2.017	-2.133	-2.210	4.446*	4.614*	4.572*	6.613*	5.889*	5.255
	(2.236)	(2.228)	(2.236)	(2.365)	(2.374)	(2.361)	(3.413)	(3.364)	(3.394)
Services availability	1.736	1.831	1.851	-1.872	-1.903	-1.609	-0.444	-1.268	-0.745
	(3.125)	(3.119)	(3.123)	(3.797)	(3.817)	(3.796)	(3.209)	(3.176)	(3.180)
Consumer durables	12.307***	12.113***	12.436***	4.583	3.856	4.476	9.754**	8.945**	9.690**
	(4.155)	(4.142)	(4.143)	(3.457)	(3.456)	(3.442)	(4.578)	(4.525)	(4.534)
PPVT	0.053***	0.053***	0.052***	0.165***	0.174***	0.159***	0.070**	0.069**	0.070**
	(0.017)	(0.017)	(0.017)	(0.048)	(0.048)	(0.048)	(0.031)	(0.030)	(0.030)
Cloze	0.654***	0.661***	0.656***	0.999***	1.008***	1.010***	0.035	0.067	0.033
	(0.103)	(0.103)	(0.103)	(0.145)	(0.146)	(0.145)	(0.152)	(0.150)	(0.150)
Math	1.185***	1.169***	1.174***	1.092***	1.085***	1.094***	1.030***	1.010***	1.031***
	(0.104)	(0.104)	(0.104)	(0.119)	(0.120)	(0.119)	(0.103)	(0.101)	(0.102)
Hours of study	0.828***	0.826***	0.834***	0.324	0.295	0.315	0.730***	0.736***	0.726***
	(0.146)	(0.145)	(0.146)	(0.198)	(0.198)	(0.197)	(0.179)	(0.177)	(0.177)
Firstborn	2.835***	2.870***	2.809***	0.989	1.043	1.084	1.806*	1.733	1.780*
	(0.983)	(0.980)	(0.981)	(1.023)	(1.031)	(1.023)	(1.084)	(1.071)	(1.075)
Youth Alone	-0.149			1.156*			0.038		
	(0.778)			(0.681)			(0.787)		
Joint		0.812			0.501			2.662***	
		(0.565)			(1.049)			(0.689)	
Parents Alone			-0.609			-1.536**			-2.408***
			(0.636)			(0.767)			(0.722)
Observations	631	631	631	405	405	405	654	654	654
R-squared	0.664	0.665	0.665	0.684	0.682	0.685	0.473	0.486	0.483

*** p<0.01, ** p<0.05, * p<0.1. Standard errors in parentheses. All estimations control for rurality, cluster and child ethnic fixed effects.

Table 6: Regression results on test performance

A possible explanation for the positive relationship between autonomy and achievements among Peruvian youths can be found in Garcia and Garcia's (2009) argument. They propose that in horizontal collectivistic societies in South America (and South Europe) egalitarian rather than hierarchical relations are emphasized, parental strictness would have a more negative meaning than that in vertical collectivistic societies, and therefore, low parental control is desirable (Garcia and Garcia, 2009). Indeed, among the three countries, Peru score lowest in the Power Distance Index[4] (India 77, Peru 64, Vietnam 70) and highest in the Indulgence Index[5] (India 26, Peru 46, Vietnam 35) (Hofstede Insights, 2019a). This type of argument would imply that in India, where parents have high power in the family and people generally do not emphasize leisure and desires, parental control is perceived as less negative. However, the differences across the three countries are not very large, and there are various factors that can can affect the relationship between autonomy and achievements, this explanation is not conclusive.

3.3 Robustness check

Table 7 shows the coefficients of *Youth Alone*, *Joint* and *Parents Alone* indices in regression models similar to the main models, but with alternative factor loadings of the indices. The first three columns show models with the indices being simple averages of recoded decision making variables, the remaining three columns show models with the indices constructed separately for each country.

When all the decision making variables receive equal weights, the yielded correlations between autonomy indices and achievements have the same directions and similar magnitude as in those in the main analysis. That is, in Vietnam and India, joint decision making is associated with positive outcomes and parental unilateral decision making negative outcomes. In Peru, parental unilateral decision making negative outcomes but the correlation between youth unilateral decision making and test performance is no longer significant. The coefficients in this model is generally slightly smaller than the coefficients in the main model may be because household decisions (L. PURCHASES and S. PURCHASES) are now given higher weights, equal to individual decisions (SCHOOL, MONEY, GO OUTSIDE and GROUP).

When factor analysis is carried out separately for each country and as a results, factor loadings are different across countries, the results for Vietnam and India are essentially the same as in the main model. However, the results for Peru change. The coefficients of *Parent Alone* and *Youth Alone* are both smaller and less significant. As can be seen from Table 3 and Table 4, factor loadings for the three indices are very similar in the pooled and the separate analyses for Vietnam and India. However, for Peru, the situation is different. In the pooled factor analysis, factor loadings for individual decisions (SCHOOL, MONEY, GO OUTSIDE and GROUP) are high while those for household decisions (L.PURCHASES and S.PURCHASES) are low. Instead, in the separate analysis, individual decisions contribute little to the aggregate indices and household decisions contribute much more.

	(1)	(2)	(3)	(4)	(5)	(6)
	Equal weighting			Country-variant factor loadings		
VARIABLES	India	Peru	Vietnam	India	Peru	Vietnam
Youth Alone	-0.289	1.025	0.039	-0.135	0.308	0.089
	(0.696)	(0.646)	(0.640)	(0.670)	(1.216)	(0.674)
Joint	0.634	1.039	2.189***	1.038	0.154	2.411***
	(0.455)	(0.809)	(0.560)	(0.647)	(0.572)	(0.688)
Parents Alone	-0.547	-1.505**	-2.048***	-0.694	-1.382*	-2.410***
	(0.516)	(0.649)	(0.586)	(0.629)	(0.785)	(0.741)

Table 7: Regression results on academic achievements with alternative weightings of decision making variables

[4] Power distance is defined as the extent to which the less powerful members of institutions and organisations within a country expect and accept that power is distributed unequally (Hofstede Insights, 2019).

[5] Indulgence is opposed to Restraint, the extent to which people try to control their desires and impulses, based on the way they were raised (Hofstede Insights, 2019).

From this observation we can conclude that participation in decision making regarding household decisions (from purchases of small household items like water, gas, to large items like house, land) is not important to the youth. Rather, decision making regarding their own lives (schooling, spending their money, going outside the community, joining local groups) has a more important role in their development. This is in line with several other studies which find that the impact of decision making autonomy on adolescent outcomes vary across types of decisions (Smetana et al. 2004).

3.4 Implications and limitations

The study has both theoretical and policy implications. It contributes to the literature on decision making autonomy and academic achievements by making cross-country comparisons, emphasizing the differences in this relationship across different cultural contexts. The research also points out the sensitivity of the results to construction of autonomy measures. Overweighting of household decisions, which are less relevant to youth's welfare, may lead to underestimation of the relationship between autonomy and test performance.

The findings also call for more attention towards parent-child relationship if households, organizations, and governments aim to promote education and child well-being. Several studies have acknowledged the complexities of this relationship. Berry (2015), for example, find that offering toys to low-performing students in India who attend after-school reading tutorials is more effective than paying their parents. Dinkelman and Martínez A. (2014) give information about college financing options to Chilean eighth graders and some parents. They document that delivering information to both parents and children is not more effective than providing the same information to children only. Bursztyn and Coffman (2012) report that parents in Brazil prefer conditional transfers to unconditional transfers as a result of intergenerational conflict and a lack of parental control. However, proper understanding of parent-child relationship and well-designed programs can bring very positive effects. Programmes which aim to engage parents in their child's education in Brazil (Cunha et al.) and Chile (Berlinski et al., 2016) by sending text messages ended in success, with both students' attendance and performance significantly improved. The results of this study suggest that parent-child relationship has an important role in child's educational success, but programs targeting this relationship should be tailored to the specifics of each country.

The research has several limitations. First, this is a concurrent analysis so the direction of impacts is not clear. The positive correlation between autonomy and achievements can be because participation in family decision making benefit youth development or because parents respond to their child' decision making capability by granting them more autonomy. There can also be a confounding factor that affects both autonomy and achievements. A longitudinal study would give a clearer answer to this issue.

Second, this research is based on adolescents' own reports on decision making. Whether there are differences between parents' and the child's perceptions in this matter, and whether such differences, if they exist, lead to a different conclusion, is open to further investigation. Some works find that parents report lower autonomy for their children than those children think they have (Dornbusch et al., 1990; Smetana et al., 2004), while others find no disparity (Wang et al., 2004). However, researchers argue that adolescents' perceptions of their parents' behaviour are more important than their actual behaviour (Gray and Steinberg, 1999) and find few connections between mothers' ratings and youth outcomes (Smetana et al., 2004).

Furthermore, the impacts of autonomy on youth's educational outcomes can be heterogeneous even within a country. It is likely that whether more autonomy is beneficial or harmful depends on the youth's decision making capabilities. Research on decision making capability among adolescents is, therefore, desirable for complete understanding of the relationship between autonomy and youth's outcomes.

4 CONCLUSION

The findings of this research shed more light into the current debates with regards to the correlates of autonomy. It provides evidence that in countries where traditional views on gender roles are widespread, females are more closely controlled than boys. Female nineteen-year-olds are found to have less decision-making power than their male counterparts in all three countries Vietnam, India and Peru. However, there are no differences between first-borns and

later-borns in terms of autonomy. The study also find a negative relationship between household's socio-economic background and youth autonomy in India. Peruvian parents seem to provide smarter kids with more autonomy. Child migration is positively related to autonomy in Vietnam.

Most importantly, the study finds a positive relationship between autonomy and test performance in Peru and Vietnam. Youth unilateral decision making in Peru and parent-child joint decision making in Vietnam are associated with higher test performance. Parental unilateral decision making is associated with lower performance in both countries. There is no significant correlation between participation in family decision making and performance in India. It concludes that autonomy is healthy for youth, even in collectivistic cultures and in societies with low-quality institutions and fast-changing economic conditions. However, the results remain sensitive to construction of autonomy measures. Overweighting of household decisions may lead to underestimation of the relationship between autonomy and test performance.

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